UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 36522

CSAH NO. 5

OVER THE

BIG FORK RIVER

DISTRICT 1 - KOOCHICHING COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 25)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 36522, Piers 1 and 2, were found to be in good condition with no defects of structural significance observed. The early stages of coating failure and some light surface corrosion were noted on the cast-in-place steel pipe piles. At the time of the inspection, the channel bottom appeared stable with no significant scour.

INSPECTION FINDINGS:

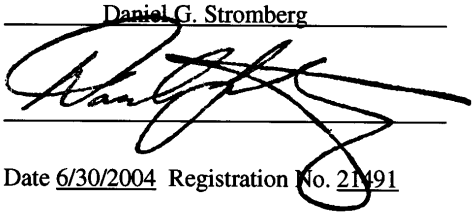
(A) The steel pipe piles exhibited coating failure with light corrosion over 10 to 25 percent of the surface area from 1.5 feet above the waterline to the channel bottom.

RECOMMENDATIONS:

(A) Reinspect all substructure units underwater within the normal maximum (NBIS) interval of five (5) years. During low water levels, substructure units could be inspected using waders.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

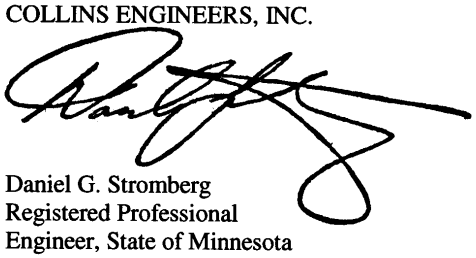
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 36522

Feature Crossed: The Big Fork River

Feature Carried: CSAH No. 5

Location: District 1 - Koochiching County

Bridge Description: The superstructure consists of three spans of multiple prestressed concrete beams. The superstructure is supported by two reinforced concrete abutments founded on piles and two cast-in-place concrete pipe pile bent piers. The piers are numbered 1 and 2 starting from the north end of the bridge.

2. INSPECTION DATA

Professional Engineer Diver: Daniel G. Stromberg, P.E.
State of Minnesota, P.E., No. 21491

Dive Team: Michelle D. Koerbel, Matt J. Lengyel

Date: August 24, 2002

Weather Conditions: Sunny, "70EF

Underwater Visibility: "5 Foot

Waterway Velocity: "1 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: Piers 1 and 2 consist of a single line of eight steel piles (concrete filled pipe piles) supporting a reinforced concrete cap.

Maximum Water Depth at Substructure Inspected: Approximately 1.5 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the upstream end of Pier 2.

Water Surface: The waterline was approximately 13.8 feet below reference.
Assumed Water Elevation = 86.2.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

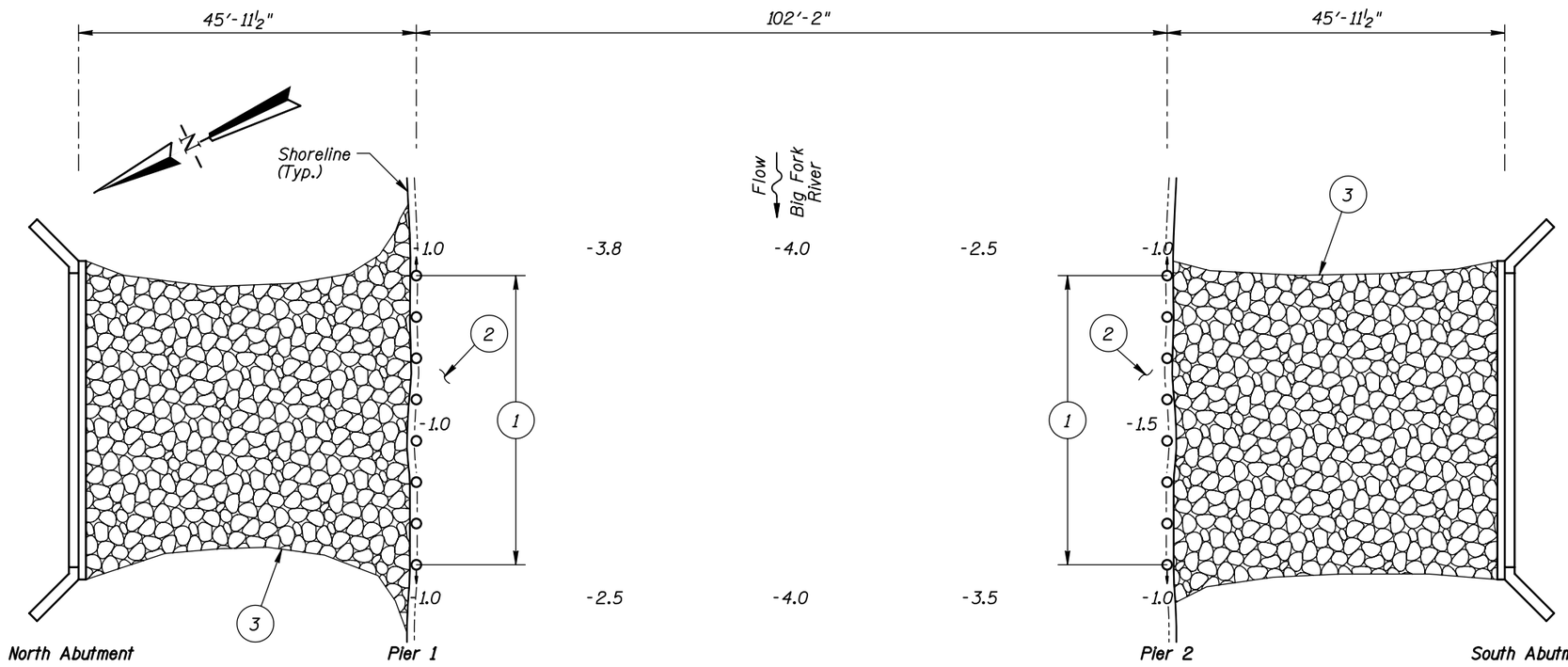
Item 61: Channel and Channel Protection: Code 8

Item 92B: Underwater Inspection: Code A/08/02

Item 113: Scour Critical Bridges: I/02

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____Yes ___X__No



SOUNDING PLAN

GENERAL NOTES:

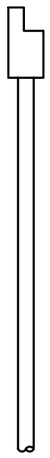
1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on August 24, 2002, the waterline was located approximately 13.8 feet below the top of the bridge seat at the upstream end of Pier 2. Since insufficiant bridge elevation information was available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 86.2.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

(1) The steel pipe piles exhibited coating failure with light corrosion over 10 to 25 percent of their surface area from 1.5 feet above the waterline to the channel bottom.

(2) The channel bottom consisted of 1 to 2 foot diameter riprap with no probe rod penetration.

(3) The embankments were well armored with 1 to 2 foot diameter riprap.



TYPICAL END VIEW OF PIERS
(Pier 2 Opp. Hand)

Legend

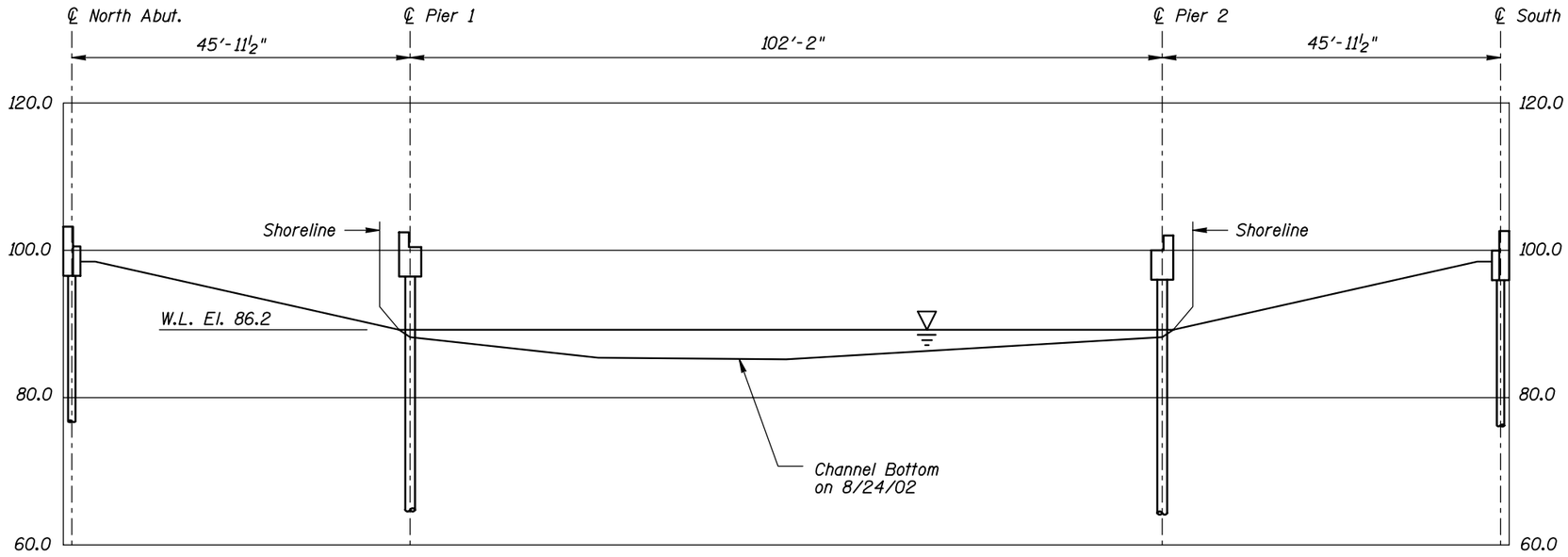
-4.0	Sounding Depth from Waterline (8/24/02)
o	16" Diameter Steel Pipe, Cast-in-place Concrete Pile
o	Battered 16" Diameter Steel Pipe, Cast-in-place Concrete Pile
	Riprap

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

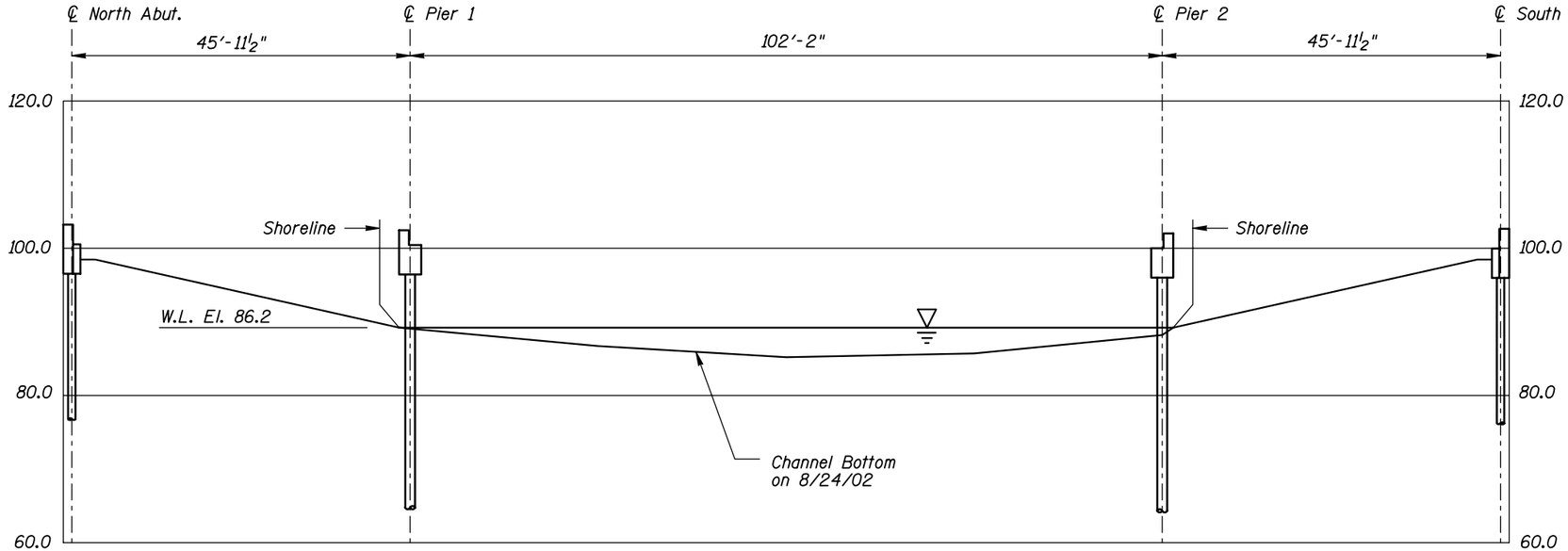
STRUCTURE NO. 36522
OVER THE BIG FORK RIVER
DISTRICT 1, KOOCHICHING COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: AUG. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120025		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. 36522
OVER THE BIG FORK RIVER
DISTRICT I, KOOCHICHING COUNTY

UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: AUG. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=20'
Code: 35I20025		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking Southwest.

Photograph 2. View of Pier 2, Looking Northeast.

Photograph 3. View of Pier 1, Looking Northeast.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: August 24, 2002
ON-SITE TEAM LEADER: Daniel G. Stromberg, P.E.
BRIDGE NO: 36522 WEATHER: Sunny, "70EF
WATERWAY CROSSED: The Big Fork River
DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
OTHER Wading, due to low water levels
PERSONNEL: Michelle D. Koerbel, Matt J. Lengyel
EQUIPMENT: Scraper, Lead Line, Sounding Pole, Probe Rod, Camera
TIME IN WATER: 9:55 A.M.
TIME OUT OF WATER: 10:25 A. M.
WATERWAY DATA: VELOCITY "1 f.p.s.
VISIBILITY "5 feet
DEPTH 1.5 feet maximum at Pier 2
ELEMENTS INSPECTED: Piers 1 and 2
REMARKS: Overall, the substructure units inspected, Piers 1 and 2, were in good condition with no significant deterioration. The steel pipe piles exhibited the beginning of coating failure and light corrosion over 10 to 25 percent of their surface area from 1.5 feet above the waterline to the channel bottom. Both embankments were well armored with 1 to 2 foot diameter riprap. The channel bottom appeared stable with no significant scour.

FURTHER ACTION NEEDED: _____ YES ___X___ NO

Reinspect all substructure units underwater within the normal maximum (NBIS) interval of five (5) years. During low water levels, substructure units could be inspected using waders.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 36522
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Daniel G. Stromberg, P.E. 21491
WATERWAY CROSSED The Big Fork River

INSPECTION DATE August 24, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	1.0’	7	N	N	9	N	7	8	8	8	8	8	N	7	N	8	N	N
	Pier 2	1.5’	7	N	N	9	N	7	8	8	8	8	8	N	7	N	8	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the substructure units inspected, Piers 1 and 2, were in good condition with no significant deterioration. The steel pipe piles exhibited the beginning of coating failure and light corrosion over 10 to 25 percent of their surface area from 1.5 feet above the waterline to the channel bottom. Both embankments were well armored with 1 to 2 foot diameter riprap. The channel bottom appeared stable with no significant scour.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.